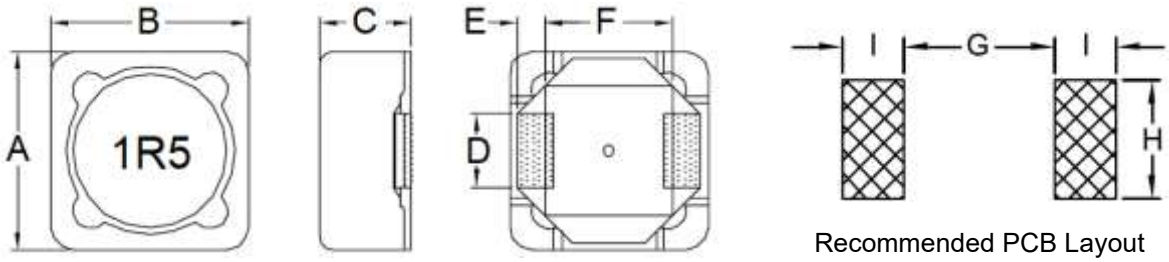
1. Part No. Expression

S D B 1 2 0 5 1 R 5 Y Z F

(a) (b) (c) (d) (e) (f)

(a)	Series Code	(d)	Tolerance Code
(b)	Dimension Code	(e)	Special Code
(c)	Inductance Code	(f)	Packaging Code

2. Configuration & Dimensions (Unit: mm)



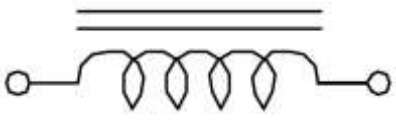
Recommended PCB Layout

Note: 1. The above PCB layout reference only.

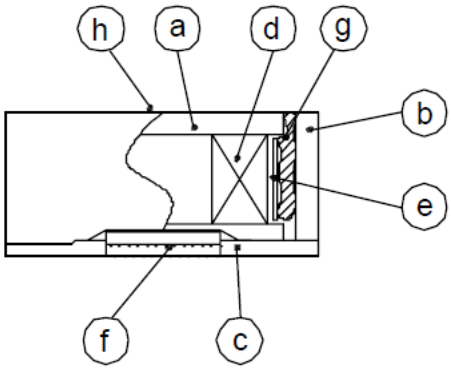
2. Marking: Inductance Code

A	B	C	D	E
12.5±0.3	12.5±0.3	6.0 Max	5.0±0.2	2.2±0.2
F	G	H	I	-
7.6±0.2	7.0 Ref	5.4 Ref	2.8 Ref	-

3. Schematic



4. Material List



(a) DR Core
(b) RI Core
(c) Base
(d) Wire
(e) Tape
(f) Terminal
(g) Adhesive
(h) Ink

5. General Specifications

(a) Operating Temp.: -40°C to +125°C (including self-temperature rise)
(b) All test data referenced to 25°C ambient.
(c) Heat Rated Current (Irms) will cause the coil temperature rise ΔT of 40°C Max.
(d) Saturation Current (Isat) will cause inductance L0 to drop 20% Max.
(e) Rated Current: The lower value of Isat and Irms.
(f) Resistance to solder heat: 260°C 10 secs
(g) Storage Condition (Component in its packaging)
  i) Temperature: -10°C to 40°C
  ii) Humidity: Less than 60% RH

6. Electrical Characteristics

Part Number	Inductance (μH) @0A	Test Frequency	RDC (mΩ) Max	Irms (A) Max	Isat (A) Max
SDB12051R5YZF	1.5	1V/100KHz	12	7.50	8.00
SDB12052R2YZF	2.2	1V/100KHz	14	7.10	7.00
SDB12053R1YZF	3.1	1V/100KHz	17	6.60	6.00

Note:
Tolerance Code: M=±20%, Y=±30%

Part Number	Inductance (μH) @0A	Test Frequency	RDC (mΩ) Max	Irms (A) Max	Isat (A) Max
SDB12054R4YZF	4.4	1V/100KHz	20	6.30	5.00
SDB12055R2YZF	5.2	1V/100KHz	21	5.90	4.40
SDB12057R5YZF	7.5	1V/100KHz	24	5.30	4.20
SDB1205100MZF	10.0	1V/1KHz	25	5.10	4.00
SDB1205120MZF	12.0	1V/1KHz	27	4.80	3.50
SDB1205150MZF	15.0	1V/1KHz	30	4.40	3.30
SDB1205180MZF	18.0	1V/1KHz	34	4.10	3.00
SDB1205220MZF	22.0	1V/1KHz	36	4.00	2.80
SDB1205270MZF	27.0	1V/1KHz	51	3.50	2.30
SDB1205330MZF	33.0	1V/1KHz	57	3.30	2.10
SDB1205390MZF	39.0	1V/1KHz	68	2.90	2.00
SDB1205470MZF	47.0	1V/1KHz	75	2.70	1.80
SDB1205560MZF	56.0	1V/1KHz	110	2.40	1.70
SDB1205680MZF	68.0	1V/1KHz	120	2.20	1.50
SDB1205820MZF	82.0	1V/1KHz	140	2.10	1.40
SDB1205101MZF	100.0	1V/1KHz	160	2.00	1.30
SDB1205121MZF	120.0	1V/1KHz	170	1.80	1.10
SDB1205151MZF	150.0	1V/1KHz	230	1.70	1.00
SDB1205181MZF	180.0	1V/1KHz	290	1.40	0.90
SDB1205221MZF	220.0	1V/1KHz	400	1.30	0.80
SDB1205271MZF	270.0	1V/1KHz	460	1.20	0.75
SDB1205331MZF	330.0	1V/1KHz	510	1.10	0.68
SDB1205391MZF	390.0	1V/1KHz	690	1.00	0.65
SDB1205471MZF	470.0	1V/1KHz	770	0.90	0.58
SDB1205561MZF	560.0	1V/1KHz	860	0.80	0.54
SDB1205681MZF	680.0	1V/1KHz	1200	0.80	0.48
SDB1205821MZF	820.0	1V/1KHz	1340	0.70	0.43
SDB1205102MZF	1000.0	1V/1KHz	1530	0.60	0.40

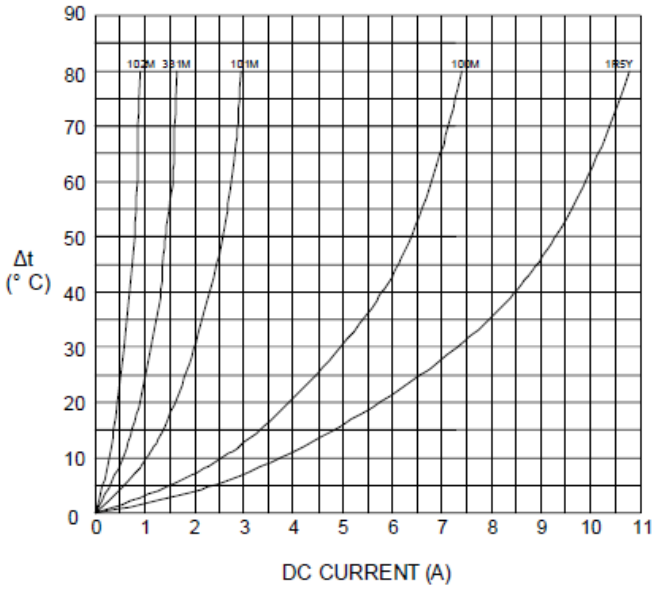
Note:

Tolerance Code: M=±20%, Y=±30%

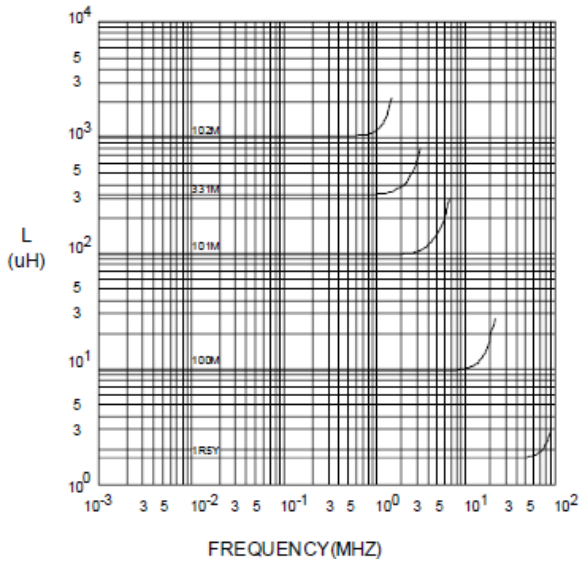
NOTE: Specifications subject to change without notice. Please check our website for latest information.

7. Characteristics Curve

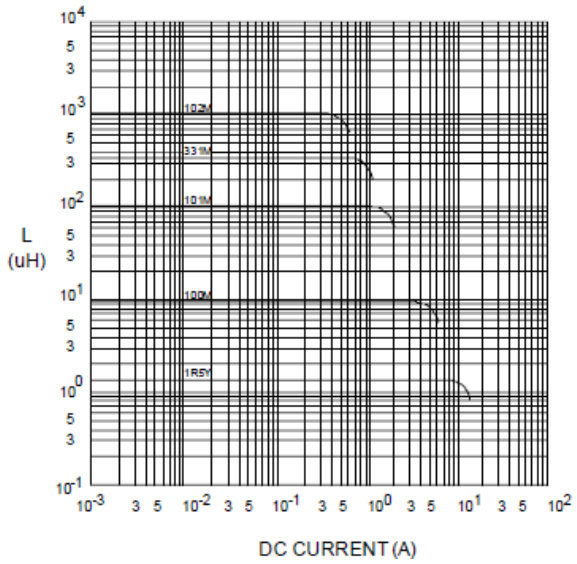
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ INDUCTANCE VS. FREQUENCY RESPONSE CURVE



@ INDUCTANCE VS. DC SUPERPOSITION RESPONSE CURV



NOTE: Specifications subject to change without notice. Please check our website for latest information.

8. Soldering Specification

Mildly activated rosin fluxes are preferred. Our terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

8-1. IR Soldering Reflow

Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020F).

8-2. Iron Reflow

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended (Figure 2).

Note:

(a) Preheat circuit and products to 150°C.

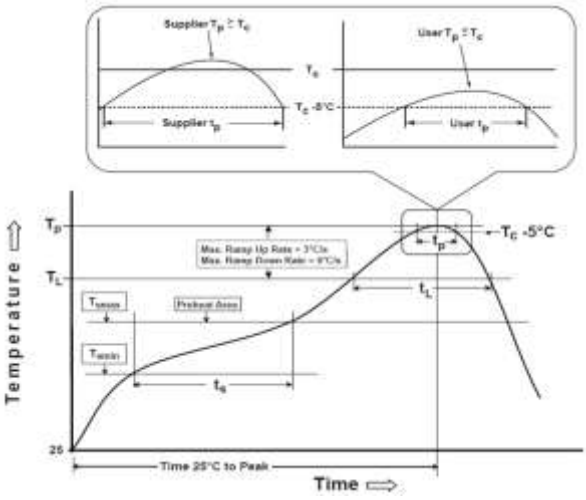
(b) 350°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

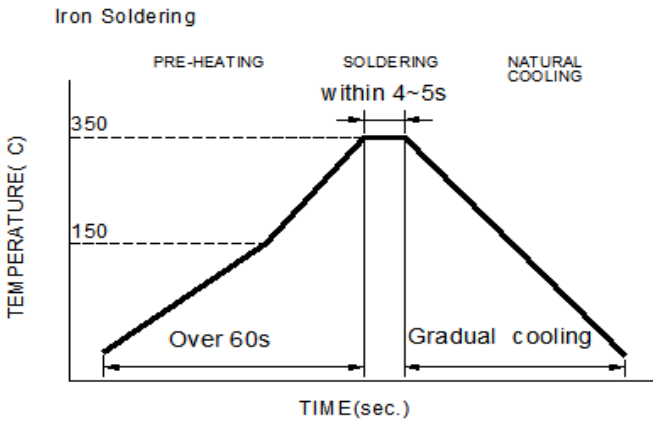
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(f) Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Iron Soldering times：1 times max

Figure 2: Iron soldering temperature profiles

NOTE: Specifications subject to change without notice. Please check our website for latest information.

Table (1.1) Reflow Profiles

Profile Type:	Pb-Free Assembly
Preheat -Temperature Min (T_{smin}) -Temperature Max (T_{smax}) -Time (t_s) from (T_{smin} to T_{smax})	 150°C 200°C 60-120seconds
Ramp-up rate ($T_L$to T_p)	3°C /second max.
Liquids temperature (T_L) Time (t_L) maintained above T_L	217°C 60-150 seconds
Classification temperature (T_c)	See Table (1.2)
Time (t_p) at Tc- 5°C (Tp should be equal to or less than Tc.)	< 30 seconds
Ramp-down rate (T_p to T_L)	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

Tp: maximum peak package body temperature, **Tc**: the classification temperature.

For user (customer) **Tp** should be equal to or less than **Tc.**

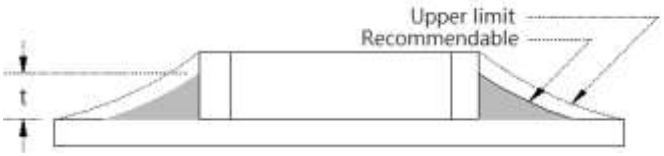
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	Package Thickness	Volume mm^3 <350	Volume mm^3 350-2000	Volume mm^3 >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020F.

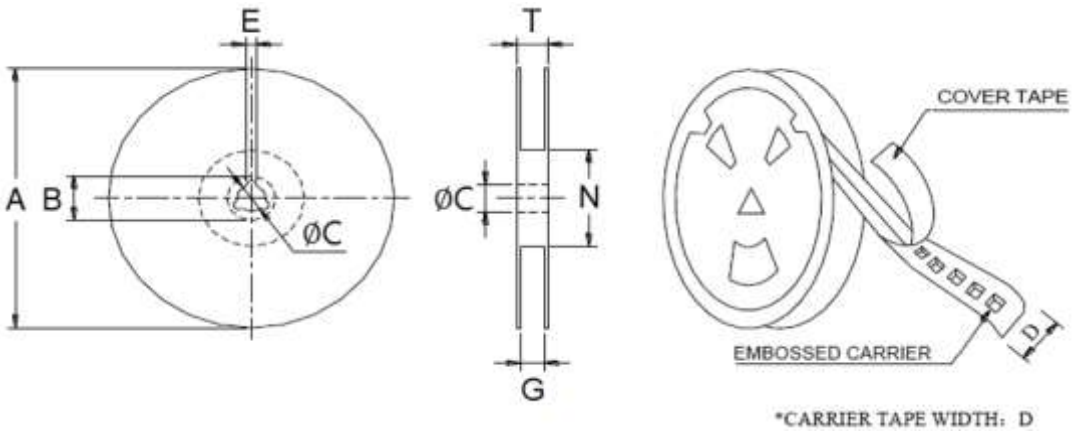
8-3. Soldering Volume

Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance. Solder shall be used not to be exceeded as shown in the Figure below. Minimum fillet height = soldering thickness + 25% product height.



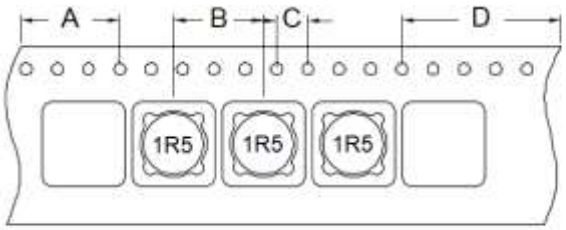
9. Packaging Information

9-1. Reel Dimension (Unit: mm)

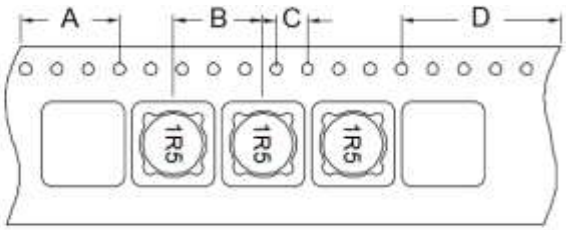


Type	A	B	C	D
	330.0 Ref	21.0 Ref	13.0 Ref	24.0 Ref
13”x24mm	E	G	N	T
	2.0 Ref	26.0 Max	50.0 Min	30.4 Ref

9-2. Tape Dimension (Unit: mm)



Packaging Code: F



Packaging Code: G

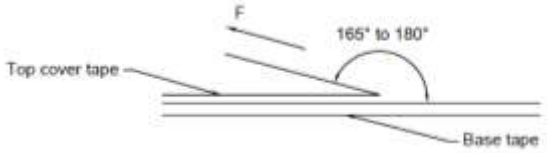
A	B	C	D
200	12	4	400

NOTE: Specifications subject to change without notice. Please check our website for latest information.

9-3. Packaging Quantity & G.W & Size

INNER : REEL			OUTER : CARTON		
QTY(PCS)	G.W(gw)	STYLE	QTY(PCS)	G.W(Kg)	SIZE(cm)
600	1900	13-24	2400	11.1	38x36.5x21

9-4. Tearing Off Force



The force for tearing off cover tape is according to the follow table, in the arrow direction under the following conditions.
(Referenced ANSI/EIA-481-D-2008 of 4.11 standard)

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300±10

Tape Size	8 mm	12 to 56 mm	72 mm or Wider
Tearing Off Force (grams)	10~100	10~130	10~150

Application Notice

1. Storage Conditions

To maintain the solderability of terminal electrodes:

(a) Products meet IPC/JEDEC J-STD-020F standard-MSL, level 1.

(b) Recommended products should be used within 12 months from the time of delivery.

(c) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation

(a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.

(b) Vacuum pick up is strongly recommended for individual components.

(c) Bulk handling should ensure that abrasion and mechanical shock are minimized.